

## **REMARKS**

### **Status of the Claims**

Claims pending in the above-identified application are Claims 8, 26-45, and 50-54. Claim 40 is amended. The amended claim does not introduce new matter into the above-identified application. Support for the amended claim may be found throughout the specification.

### **The Rejection Under 35 USC § 112, 1<sup>st</sup> Paragraph, and Objection Under 35 USC § 132**

Claims 8 and 26-38, 45, and 50-54 are rejected under 35 USC § 112, first paragraph, for allegedly failing to comply with the written description requirement. Respectfully, Applicants traverse this rejection.

As claimed in Claims 8, 38, and 50 and the respective claims depending therefrom, the phrases "at least one organometal compound" and "mixtures thereof" as pertaining to the organometal compound have been deemed to be new matter. Also, as claimed in Claims 8, 38, 40, and 51 and the respective claims depending therefrom, the phrases "at least one organoaluminum compound" and "mixtures thereof" as pertaining to the organoaluminum compound have been deemed to be new matter. Respectfully, Applicants assert that these phrases are not new matter.

The issue of whether a patent specification adequately describes the subject matter claimed is a question of fact. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 U.S.P.Q.2d 1111, 1116 (Fed. Cir. 1991). Written description cases must be decided on a case-by-case basis. *See Ralston Purina Co. v. Far-Mar-Co.*, 772 F.2d 1570, 1575, 227 U.S.P.Q. 177, 179 (Fed. Cir. 1985); *In re Smith*, 458 F.2d 1389, 1395, 173 U.S.P.Q. 679, 683 (C.C.P.A. 1973); *In re Driscoll*, 562 F.2d 1245, 1250, 195 U.S.P.Q. 434, 438 (C.C.P.A. 1977). The subject matter of the claimed invention need not be described literally or "*in ipso verbis*" in order for the specification to satisfy the description requirement. *See, e.g., Cordis Corp. v.*

Clearly, Applicants teach a catalyst system that employs one organometal compound. Likewise, Applicants teach, and one of ordinary skill in the art readily recognizes through the incorporated patents, that two or more organometals may be employed in a catalyst system. Accordingly, Applicants teach that at least one (*i.e.*, one or more) or a mixture of organometal compounds may be employed in the catalyst system described in the specification of the above-identified application as claimed in the rejected claims.

Similarly, Applicants also teach that at least one (*i.e.*, one or more) or a mixture of organoaluminum compounds may be employed in a catalyst system. Referring again to U.S. Patent No. 5,436,305, *Alt et al.* at column 6, lines 26-49, teach that multiple co-catalysts, e.g., an aluminoxane in combination with a trialkylaluminum, may be employed in catalyst compositions comprising one or more organometal compounds. Further, *Peifer et al.* in U.S. Patent No. 5,654,454, attached hereto as Exhibit "C", at column 4, lines 13-41, state:

Typically the inventive metallocene would be used with a suitable cocatalyst. Examples of suitable cocatalysts include generally any of those organometallic cocatalysts which have in the past been employed in conjunction with transition metal containing olefin polymerization catalysts. Some typical examples include organometallic compounds of metals of Groups IA, IIA, and IIIB of the Periodic Table. Examples of such compounds have included organometallic halide compounds, organometallic hydrides and even metal hydrides. Some specific examples include triethylaluminum, triisobutylaluminum, diethylaluminum chloride, diethylaluminum hydride, and the like... Another example would be the use a mixture of trimethylaluminum and dimethylfluoroaluminum such as disclosed by Zambelli et, *Macromolecules*, 22, 2186 (1989)...

*Medtronic Ave., Inc.*, --F.3d--, Nos. 02-1457, -1458, -1481, -1482 (Fed. Cir. August 12, 2003); *In re Lukach*, 442 F.2d 967, 969, 169 U.S.P.Q. 795, 796 (C.C.P.A. 1971). Furthermore, it is sufficient that the specification "convey clearly to those skilled in the art the information that the applicant has invented the specific subject matter later claimed." See, e.g., *In re Wertheim*, 541 F.2d 257, 262, 191 U.S.P.Q. 90, 96 (C.C.P.A. 1976); *In re Ruschig*, 379 F.2d 990, 996, 154 U.S.P.Q. 118, 123 (C.C.P.A. 1967).

Applicants in the specification of the above-identified application at page 7, line 18, to page 8, line 3, after discussing organometal compounds, state the following:

Various processes are known to make these compositions. See, for example, U.S. Pat. Nos. 4,939,217; 5,210,352; 5,436,305; 5,401,817; 5,631,335; 5,571,880; 5,191,132; 5,480,848; 5,399,636; 5,565,592; 5,347,026; 5,594,078; 5,498,581; 5,496,781; 5,563,284; 5,554,795; 5,420,320; 5,451,649; 5,541,272; 5,705,478; 5,631,203; 5,654,454; 5,705,579; and 5,668,230; the entire disclosures of which are hereby incorporated by reference. (Emphasis added.)

Applicants direct the Examiner generally to these incorporated by reference patents which discuss catalyst compositions employing one or more (*at least one or a mixture of*) organometal compounds in respective catalyst compositions. For example, U.S. Patent No. 4,939,217 to *Stricklin*, attached hereto as Exhibit "A", describes at column 3, lines 50-64, a process which employs a catalyst system comprising an amount of an aluminoxane and an amount of at least two different metallocenes. *Alt et al.* describe in U.S. Patent No. 5,436,305, attached hereto as Exhibit "B", at column 6, lines 58-62, a catalyst system that employs "a mixture of two or more fluorenyl-containing metallocenes or a mixture of an inventive fluorenyl-containing metallocenes with one or more other cyclopentadienyl-type metallocenes."

Clearly, Applicants teach a catalyst system that employs one organoaluminum compound. Likewise, Applicants teach, and one of ordinary skill in the art readily recognizes through the incorporated patents, that two or more organoaluminum compounds may be employed in a catalyst system. Accordingly, Applicants teach that at least one (*i.e.*, one or more) or a mixture of organoaluminum compounds may be employed in the catalyst system described in the specification of the above-identified application as claimed in the rejected claims.

Thus, Applicants respectfully assert that one of ordinary skill in the art recognizes through Applicants' teachings that a catalyst composition in accordance with the present invention is produced by a process comprising contacting at least one organometal compound, at least one treated solid oxide compound, and at least one organoaluminum compound. Further, one of ordinary skill in the art recognizes from Applicants' teachings that respective mixtures of any of the organometal compounds and any of the organoaluminum compounds discussed or described in the above-identified application may be employed as claimed. Accordingly, Applicants request that the rejection of Claims 8 and 26-38, 45, and 50-54 under 35 USC § 112, first paragraph, be withdrawn. Additionally, for the reasons discussed above, Applicants request that the objection under 35 USC § 132 be withdrawn.

**The Rejections Under 35 USC § 102(b)**

Claim 40 is rejected under 35 USC § 102(b) as being anticipated by Soga et al., Makromol. Chem. 1993. In view of the above amendment, this rejection is obviated.

The invention as claimed in Claim 40 is directed to a process of using a catalyst composition to polymerize at least one monomer to produce a polymer. The process comprises contacting the catalyst composition and the at least one monomer in a polymerization zone under polymerization conditions to produce the polymer. As claimed, the catalyst composition is produced by a process comprising:

- 1) calcining an oxide selected from alumina, silica-alumina, aluminophosphate, and mixtures thereof to produce a calcined oxide;
- 2) contacting said calcined oxide with a treating agent selected from sulfating agents, fluoriding agents, and chloriding agents to produce a treated oxide;
- 3) combining (1) the treated oxide, (2) an organoaluminum compound selected from triethylaluminum, triisobutylaluminum, and mixtures thereof; and (3) an organometal compound.

The catalyst composition has an activity greater than 100 gP/gS·hr in the substantial absence of aluminoxanes and organoborates.

*Soga* as clearly indicated on page 3499 is directed to a modified SiO<sub>2</sub>. First, the claimed invention does not employ silica. However, the claimed invention does employ the mixed oxide silica/alumina. A mixed oxide is not a mixture of oxides. Second, as indicated in *Soga*'s reaction scheme, silica is specifically treated with dichlorodimethylsilane and then treated with an aqueous solution of NaHCO<sub>3</sub> to remove the chlorine atom from the silane bonded to the silica. Dichlorodimethylsilane is means of bonding a dimethylated silane to silica and is not a chloriding agent. *Soga* actually teaches away from the claimed invention by removing the chlorine atom and hydrolyzing the silane. Further, *Soga* does not teach or suggest that his silane treatment is appropriate or will work for any other oxide or mixed oxide. Still further, *Soga*'s polymerization reaction is conducted in the presence of methylaluminumoxane and there is no indication that *Soga*'s catalyst composition has any polymerization activity absent the presence of an aluminoxane. Accordingly, *Soga* does not teach or suggest each and every element of the claimed invention. Accordingly, Applicants respectfully request that this rejection of Claim 40 be withdrawn.

Claim 40 is rejected under 35 USC § 102(b) as being anticipated by European Patent specification EP 0 628 574 B1 to Inatomi et al. In view of the above amendment, this rejection is obviated.

The Examiner refers to Example 1 in column 9, lines 1-38, as teaching the claimed invention. *Inatomi* requires the presence of  $(\text{PhNMe}_2\text{H})(\text{B}(\text{C}_6\text{F}_5)_4)$ , an organoborate. See column 9, line 26. There is no teaching or suggestion that *Inatomi*'s catalyst composition has any polymerization activity absent the presence of an organoborate. Accordingly, *Inatomi* does not teach or suggest each and every element of the claimed invention. Accordingly, Applicants respectfully request that this rejection of Claim 40 be withdrawn.

**The Rejections Under 35 USC § 103(a)**


Claims 41 and 42 are rejected under 35 USC § 103(a) as being unpatentable over *Inatomi*. In view of the above amendment to Claim 40, from which Claims 41 and 42 depend, and the remarks immediately above, Applicants respectfully assert that the rejection is obviated. There is no suggestion that *Inatomi*'s catalyst composition has any polymerization activity absent the presence of an organoborate. Accordingly, *Inatomi* does not suggest each and every element of the claimed invention. Accordingly, Applicants respectfully request that the rejection of Claims 41 and 42 under 35 USC § 103(a) be withdrawn.

Appl. No. 09/909,152  
Amendment dated May 25, 2004  
Reply to Office Action of November 25, 2003

**Conclusion**

In view of the above amendment and remarks, Applicants respectfully assert that the rejection of the claims as set forth in the Office Action has been addressed and overcome. Applicants further respectfully assert that all claims are in condition for allowance and requests that an early notice of allowance be issued. If issues may be resolved through Examiner's Amendment, or clarified in any manner, a call to the undersigned attorney at (404) 879-2433 is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jeffery B. Arnold', with a stylized flourish extending to the right.

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